



**CITY OF LODI
COUNCIL COMMUNICATION**

AGENDA TITLE: Adopt Resolution Approving Technical Services Task Order with Treadwell & Rollo, Inc., for Central Plume Soil Vapor Extraction, Phase 1, and Appropriating Funds (\$380,000)

MEETING DATE: September 7, 2005

PREPARED BY: Public Works Director

RECOMMENDED ACTION: That City Council adopt a resolution approving a technical services task order with Treadwell & Rollo, Inc., for Phase 1 Soil Vapor Extraction for the Central Plume PCE/TCE remediation and appropriating funds.

BACKGROUND INFORMATION: The City has a master agreement with Treadwell & Rollo, Inc., for various technical services pertaining to the PCE/TCE contamination. As we continue to move into the remediation phase, staff is exploring various means to perform the work. However, the Regional Board is pressing the City to restart and operate the existing soil vapor extraction system located at Guild Cleaners. This task order will do that for the rest of FY 05/06, as well as provide additional analytical data to design the larger, final soil vapor extraction system.

The attached scope of work details the work to be done. Part of the work entails designing and installing a minor expansion of the Guild system to connect additional SVE wells already installed by other parties.

FISCAL IMPACT: All costs are included in the Central Plume Fund set up under the settlement agreement. The total of work estimated by Treadwell & Rollo is just under \$349,000. The recommended appropriation includes a 9% contingency.

FUNDING: Central Plume Fund \$380,000

James R. Krueger for
James R. Krueger, Finance Director

Richard C. Prima, Jr.
Richard C. Prima, Jr.
Public Works Director

RCP/RA/pmf
Attachment

cc: Philip G. Smith, Treadwell & Rollo
Wally Sandelin, City Engineer
Steve Schwabauer, City Attorney

APPROVED: *Blair King*
Blair King, City Manager

12 August 2005

Mr. Richard Prima
Public Works Department
City of Lodi
221 West Pine Street
Lodi, California 95240

Subject: Proposed Scope, Schedule and Budget
Central Plume Phase I Soil Vapor Extraction (SVE) Program
Lodi, California

Dear Mr. Prima:

Treadwell & Rollo, Inc. (Treadwell & Rollo) is pleased to submit this proposal to implement Phase I of the soil vapor extraction (SVE) program for the Central Plume Area in Lodi, California. The purpose of Phase I will be to mitigate the current calculated indoor air risk determined to exist in certain buildings, respond to the Regional Water Quality Control Board (RWQCB) request that the current system be restarted as soon as possible to mitigate the indoor air risk, and provide operational data for the design of a long-term remediation program to be implemented in 2006. In developing this program to implement Phase I, we have used the following assumptions:

- The Phase I system will be operated for up to one year, while a second, full-scale remedial program is designed and implemented;
- The LFR Levine-Fricke (LFR) and ERM-West, Inc. (ERM) SVE wells are usable with surface modifications only, and no new SVE wells will be installed;
- The existing SVE pad and equipment used by LFR will remain in the same location;
- The existing granular activated carbon (GAC) system is suitable for this work and new GAC vessels with fresh GAC are required during the system start up; and
- The existing blowers and other equipment, including air-water separator, water storage tank, and the majority of ancillary equipment, will meet the design needs of the combined system.

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The proposed scope of work for preparing and initiating operation of the Phase I system includes:

- Task 1 - preparing and restarting the LFR SVE system currently on site;
- Task 2 - design a 'fine-tuned' SVE system, relying on existing SVE wells, vacuum monitoring wells, and the equipment already installed at the site;
- Task 3 - modifying the existing SVE system, as needed, to operate until the full-scale SVE system is constructed;
- Task 4 - initiating operation of the Phase I SVE system;
- Task 5 - preparing a start up report; and
- Task 6 - overseeing the operation and monitoring of the Phase I system for a period of up to twelve months.

SCOPE OF WORK

Our proposed tasks to implement the scope of work are as follows.

Task 1 – Prepare and Re-Start Existing SVE System

Treadwell & Rollo will prepare and re-start the existing SVE system in order to evaluate the influence of the SVE system at SVE and vapor monitoring locations farther away from the active SVE wells than were available during the pilot testing of the system. The evaluation of data will focus on confirming the interpolated radii of influence (ROI) previously calculated, determining the effective area of influence of the LFR SVE system, and determining whether ERM wells should be added to the LFR SVE system to sufficiently mitigate the current calculated indoor air risk determined to exist in certain buildings.

Treadwell & Rollo will prepare the SVE system for start-up through the following tasks:

- Preparing a Health and Safety Plan for use while restarting and operating the SVE system.
- Confirming/renewing the Air Pollution Control District (APCD) discharge permit.
- Cleaning the treatment compound, which has accumulated significant vegetation.

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- Opening all the wells to confirm pipe diameter and total depth, and that fittings and gauges for measuring temperature and vacuum, and collecting vapor samples, are operable on the wellheads and manifolds.
- Checking all above ground piping for damage due to weather exposure.
- Confirming that the air/water separator for specified valves is properly connected, operable, and appropriately labeled; check that the drainage is unobstructed; and confirm that the air/water separation system has been drained.
- Checking the blowers and ancillary equipment to confirm their current condition and operability (e.g., vibration isolation devices, casing and silencers undamaged, proper belt tension, protective covers installed, pump rotation verified, silencers and sound proofing connected properly, and coupling alignment is level).
- Contracting with a licensed electrician familiar with SVE systems to check the electrical system, including continuity checks, protective covers, unit disconnect, grounding, lockouts, wiring integrity between components and supply, and appropriate lighting.
- Checking the vapor control system including the use of flexible lines and connectors for changing position of lead, interim, and lag activated carbon vessels.
- Checking for appropriate operation and maintenance equipment including spare blower air filters, blower belts, etc., and identify what additional equipment is needed prior start up.
- Identifying any system repair and replacement work that must be done prior to system start up. System repair and replacement work, if required, has not been included in this proposal.
- Contracting for operating and monitoring the Phase I SVE system with vendors familiar with the system.

Prior to start up of the existing system, Treadwell & Rollo will collect vadose-zone data without the SVE system operating to provide baseline data for evaluating the operation of the SVE system with respect to existing vadose zone conditions and the progress of the remediation. Data collection will include:

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- Purging and sampling up to 18 SVE and vapor monitoring wells to monitor volatile organic compounds (VOCs), methane, carbon dioxide and oxygen using field monitoring instruments.
- Collecting soil gas samples from up to 18 SVE and monitoring wells for chemical analysis at a fixed laboratory for VOCs by Method TO-15.
- Collecting groundwater levels at up to 10 groundwater monitoring wells.

To initiate renewed operation of the existing system, Treadwell & Rollo will start up the LFR system, monitor airflow and vacuum response in LFR and ERM SVE and vacuum monitoring locations, and collect one additional round of groundwater levels at up to 10 groundwater monitoring wells. After initial start up, Treadwell & Rollo will perform two performance tests with the system running, including:

- A constant rate test (duration approximately 2 hours) at FSEW-3 while monitoring ERM wells SVE-1 and SVM-5 through SVM-7 and LFR wells; and
- A constant rate test (duration approximately 2 hours) at PSEW-1A and PSEW-1B while monitoring ERM wells SVE-1, SVE-2, and SVM-3 through SVM-7 and LFR wells PSEW-4 through PSEW-9.

After testing, Treadwell & Rollo will select vacuum/flow parameters for system operation while modifications to the system are evaluated and designed. The existing system will be operated and maintained by the selected contractor during the design and initial modification tasks under the budget for Task 6 – Phase I System Operation and Monitoring. During this time, monitoring will be performed in accordance with the existing APCD permit, including monitoring every four days for flow parameters, vapor stream VOC content, and VOC capture by the GAC treatment vessels.

Task 2 - Designing the Phase I SVE System

Based on evaluation of the information collected and reviewed in Task 1, Treadwell & Rollo will design a Phase I SVE system, with the primary goal of mitigating the current chronic indoor air risk determined to exist in certain buildings and developing long-term operational information that will facilitate the design of the long-term remediation program. Based on the existing well layout (Figure 1), well construction information, and technical data generated in the pilot tests, we will:

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- Calculate design flow rates that will allow adequate air transfer based on the vadose zone interval screened.
- Evaluate and select a combination of LFR (PSEW-1A, PSEW-1B, PSEW-1C, FSEW-2, FSEW-3, PSEW-4 through PSEW-9) and ERM (SVE-1 and SVE-2 and SVM-3 through SVM-7) wells to be used as SVE and vacuum monitoring wells to achieve sufficient mitigation of the indoor air risks with the blowers currently installed at the site, if possible.
- Evaluate whether any of the existing wells should be used as inlet wells to reduce "dead zones" or increase pressure gradients.
- Evaluate extraction pulsing between wells or groups of wells, based on system operating limits and effectiveness of expected vapor removal.

Treadwell & Rollo will then prepare the necessary documents for implementing the Phase I system design, which will include:

- Application for changes to the existing APCD discharge permit, if needed;
- Recommendations and specifications for equipment changes, if required, for the modified SVE system operation; and
- Specifications and drawings for piping and well modification.

Task 3 – Modifying the Existing SVE System

To prepare for any modifications to the existing SVE system, Treadwell & Rollo will complete appropriate permitting paperwork (air permit modifications and construction permits, as needed); prepare bid documents for modifying the existing SVE system; and select, subcontract and oversee the modification of the SVE system and ERM wells and the construction of necessary trenching and plumbing to connect ERM wells chosen to be SVE wells into the LFR SVE system.

For estimating costs of installation, Treadwell & Rollo estimates approximately 700 feet of trenching and extraction line installation (assumes all seven ERM wells are plumbed to the treatment system through underground piping). We anticipate that this scope may be reduced in the design process by decreasing the number of SVE and vacuum monitoring wells that will be added to the existing system and reducing the amount of below grade piping required.

Task 4 – Initiating Operation of the Phase I SVE System

Treadwell & Rollo will start up the Phase I system by performing the following activities.

- Sequentially starting up the system to test the equipment, confirm operational parameters and gather operating data, including monitoring the exhaust from the GAC with a PID to confirm that VOCs are being captured; monitoring vacuum/pressure gauges and temperature gauges; measuring air flow velocities in the piping; and other performance testing.
- Evaluating the effects of pulsed SVE applications on discrete wells and groups of wells, if required.
- When the system is running at or close to the expected operating conditions (system equilibrium may take several days), we will measure flow rates, vacuum, VOC concentrations (using field instrumentation), and temperature at each SVE well, monitoring point and combined at the manifold(s).
- Collecting soil gas samples from up to 18 SVE and monitoring wells and four additional samples from the GAC system (influent, between the GAC vessels, and effluent) for chemical analysis at a fixed laboratory for VOCs by Method TO-15.

Task 5 – Data Evaluation and Start-Up Report

During the initial operation of the Phase I SVE system, Treadwell & Rollo will be evaluating the data generated and making modifications to improve system performance. When the system has reached equilibrium, we will then transition the system into operations and maintenance mode and prepare a start-up report to document performance for use in the full-scale design process. The report will include:

- Site plans showing locations of air-extraction wells and vacuum measuring points, paved areas, buildings, and structures that may act as a surface seal and/or an infiltration barrier, and buried utility trenches that may act as zones of higher permeability or short-circuiting.
- Plans and cross sections showing vacuum distribution in the subsurface at equilibrium.
- Plots of: 1) volume of air extracted versus time; 2) cumulate volume of air extracted versus time; 3) concentrations of contaminants of concern versus time; 4) mass removal rate of contaminants of concern versus time; and 5) cumulative mass of contaminants of concern removed versus time for each SVE well.

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- Tabulated well construction information if different than previously reported.
- Tabulated flow rates, vacuum/pressure readings, soil gas temperatures, times of readings, ambient barometric pressure, and the ambient temperature.
- Tabulated oxygen, methane, carbon dioxide, and VOC concentrations.
- Tabulated water levels.
- Tabulated influent and effluent discharge concentrations from the soil gas vapor treatment system.
- Tabulated liquid recovery rates from the air-water separator.
- As-built plans for the newly constructed and modified work.

Task 6 – Phase I System Operation and Monitoring

After start up, Treadwell & Rollo will oversee the contractor(s) performing operation, maintenance, and monitoring activities and servicing the GAC vapor treatment vessels. To obtain efficient operation and meet the APCD permit requirements (i.e., that the system treatment vessels meet treatment efficiencies of no less than 99 per cent for PCE, a minimum flow rate of 125 scfm, a minimum exit velocity of 5,730 fpm, and that PCE emissions not exceed 13.3 ppmv), the following activities will be performed:

- Monitoring will be performed on the system at least once every four days in accordance with the APCD permit requirement. Monitoring will include flow parameters for the total system flow (and for each pulsed well group, if pulsing is utilized), and VOC concentrations by field instruments at selected wells and the total vapor stream at the manifold, and after each GAC vessel (this activity may be performed by City personnel);
- Vapor samples will be collected for laboratory halogenated VOC analysis from the total system at the manifold and after each GAC vessel on a quarterly schedule (this may be a task that the analytical laboratory can perform);
- The vacuum influence and vapor flow parameters will be monitored throughout the well field quarterly;
- The blowers will be serviced quarterly;

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- GAC vessels will be renewed as needed, based on the weekly and quarterly monitoring. Our cost estimate assumes a carbon consumption rate of 230 lbs/day or roughly twice the rate LFR calculated for carbon consumption during the pilot test;
- Water collected in the accumulation system, and solvent accumulated in a solvent recovery system (if included in the interim design), will be sampled, removed, and disposed as needed, based on the accumulated volumes; and
- Maintain records of the cumulative running time and the measured influent and effluent concentrations in accordance with the APCD permit.

Treadwell & Rollo will prepare a quarterly technical report for submittal to the City, the APCD, and the Regional Water Quality Control Board.

SCHEDULE

We can begin this work immediately upon receipt of authorization.

Task	Approximate Duration
Task 1 – Prepare and Re-Start Existing SVE System	3 weeks
Task 2 – Designing the Modified SVE System	2 to 3 weeks
Task 3 – Modifying the Existing SVE System	4 weeks
Task 4 – Initiating Operation of the Modified SVE System	2 weeks
Task 5 – Data Evaluation and Start-Up Report	4 weeks
Task 6 – Phase I System Operation and Monitoring	Up to 52 weeks

ESTIMATED COSTS

We have estimated project costs using conservative assumptions, including a 20% contingency for construction costs and starting up the modified system (Tasks 3 and 4), a 10% contingency for operations and maintenance costs (Task 6), and the design assumption that all piping is installed below grade. Construction and operations and maintenance costs are based on discussions with Pacific States Environmental Contractors, the firm that built and operated the LFR system, and assume that GAC change-outs are needed on a weekly basis. The GAC change-out frequency is likely conservative, as GAC usage typically drops over time. However, the HVOC soil gas concentrations known to exist in the alley area are very high, and the conservative GAC use assumption is appropriate for this estimate.

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We estimate the costs for design, installation, start up and operation of the interim SVE system for six months will be as follows (detailed in Table 1):

Task	Approximate Amount
Task 1 – Prepare and Re-Start Existing SVE System	\$14,896
Task 2 – Designing the Phase I SVE System	\$12,306
Task 3 – Modifying the Existing SVE System	\$74,564
Task 4 – Initiating Operation of the Phase I SVE System	\$23,021
Task 5 – Data Evaluation and Start-Up Report	\$11,198
Total Design, Installation and Start Up Subtotal	\$135,985
Operation and Monitoring Quarterly Costs	
Task 6 – Phase I System Operation and Monitoring	\$106,342
Six-Month Operation and Monitoring Subtotal	\$212,684

We propose to perform our work on a time-and-expense basis in accordance with the City of Lodi-Treadwell & Rollo terms and conditions. We will not exceed the estimated authorized total unless the scope of services changes and we receive your prior authorization. We appreciate the opportunity to present this proposal and look forward to assisting you on this project. If you have any questions, please call either of us at 415-955-9040.

Sincerely yours,
TREADWELL & ROLLO, INC.

A handwritten signature in black ink, appearing to read "B. K. Moore".

Brian K. Moore, PE
Senior Project Engineer

A handwritten signature in black ink, appearing to read "P. G. Smith".

Philip G. Smith, REA II
Vice President

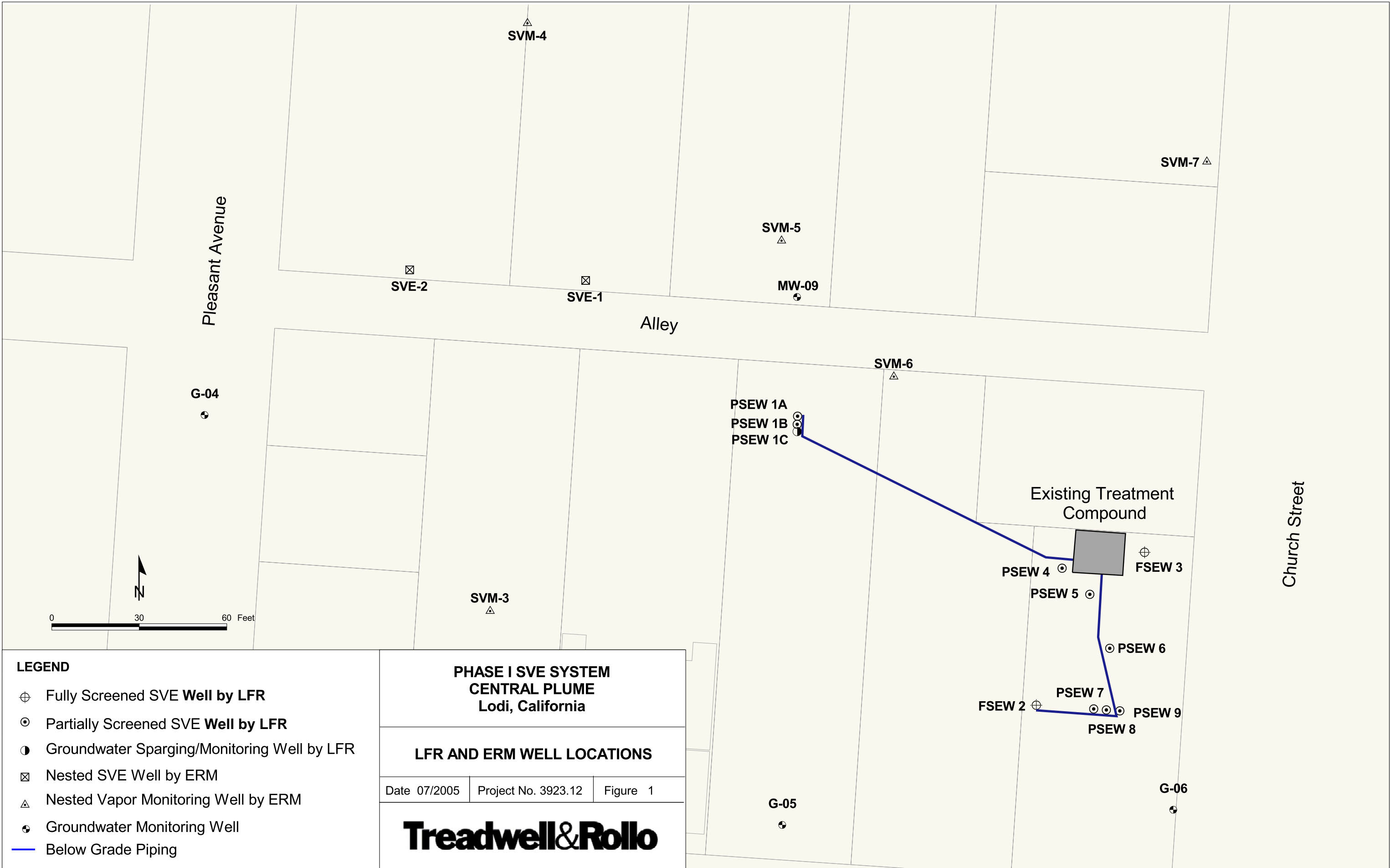
Lodi/proposal/central plume/proposals/Interim SVE proposal-logo

Attachments: Phase I SVE System Costs
Figure 1 – Pilot Study Well Locations

Treadwell & Rollo
Environmental & Geotechnical Consultants

Phase I SVE System Estimate - 8-12-05.xls Costs

Treadwell & Rollo C:\GIS\3923\3923_16\2005_Q1\GW_QUARTERLY.APR 07/2005



RESOLUTION NO. 2005-182

A RESOLUTION OF THE LODI CITY COUNCIL
APPROVING A TECHNICAL SERVICES TASK ORDER
WITH TREADWELL & ROLLO, INC., FOR CENTRAL
PLUME SOIL VAPOR EXTRACTION, PHASE 1, AND
FURTHER APPROPRIATING FUNDS

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WHEREAS, the City has a Master Agreement with Treadwell & Rollo, Inc., for various technical services pertaining to the PCE/TCE contamination; and

WHEREAS, the Regional Board is pressing the City to restart and operate the existing soil vapor extraction system located at Guild Cleaners; and

WHEREAS, staff requests the City Council to approve this task order, which will enable the operation of the soil vapor extraction system through fiscal year 2005-06, as well as provide additional analytical data to design the larger, final soil vapor extraction system.

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council hereby approves the technical services task order with Treadwell & Rollo, Inc., for the operation of the soil vapor extraction system at the Guild site through fiscal year 2005-06, as well as provide additional analytical data to design the larger, final soil vapor extraction system.

BE IT FURTHER RESOLVED that funds be appropriated as follows:

Central Plume Fund \$380,000

Dated: September 7, 2005

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I hereby certify that Resolution No. 2005-182 was passed and adopted by the City Council of the City of Lodi in a regular meeting held September 7, 2005, by the following vote:

AYES: COUNCIL MEMBERS – Hansen, Hitchcock, Johnson, Mounce, and
Mayor Beckman

NOES: COUNCIL MEMBERS – None

ABSENT: COUNCIL MEMBERS – None

ABSTAIN: COUNCIL MEMBERS – None



SUSAN J. BLACKSTON
City Clerk

CITY COUNCIL

JOHN BECKMAN, Mayor
SUSAN HITCHCOCK
Mayor Pro Tempore
LARRY D. HANSEN
BOB JOHNSON
JOANNE L. MOUNCE

CITY OF LODI
PUBLIC WORKS DEPARTMENT

CITY HALL, 221 WEST PINE STREET

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BLAIR KING

City Manager

SUSAN J. BLACKSTON

City Clerk

D. STEVEN SCHWABAUER

City Attorney

RICHARD C. PRIMA, JR.

Public Works Director

September 1, 2005

Mr. Philip Smith
Treadwell & Rollo, Inc.
555 Montgomery Street, Ste. 1300
San Francisco, CA 94111

SUBJECT: Adopt Resolution Approving Technical Services Task Order with
Treadwell & Rollo, Inc., for Central Plume Soil Vapor Extraction, Phase 1,
and Appropriating Funds (\$380,000)

Enclosed is a copy of background information on an item on the City Council agenda of
Wednesday, September 7, 2005. The meeting will be held at 7 p.m. in the
City Council Chamber, Carnegie Forum, 305 West Pine Street.

This item is on the consent calendar and is usually not discussed unless a
Council Member requests discussion. The public is given an opportunity to address
items on the consent calendar at the appropriate time.

If you wish to write to the City Council, please address your letter to City Council,
City of Lodi, P. O. Box 3006, Lodi, California, 95241-1910. Be sure to allow time for the
mail. Or, you may hand-deliver the letter to City Hall, 221 West Pine Street.

If you wish to address the Council at the Council Meeting, be sure to fill out a speaker's
card (available at the Carnegie Forum immediately prior to the start of the meeting) and
give it to the City Clerk. If you have any questions about communicating with the
Council, please contact Susan Blackston, City Clerk, at (209) 333-6702.

If you have any questions about the item itself, please call me at (209) 333-6759.

P. Prima
for: Richard C. Prima, Jr.
Public Works Director

RCP/pmf

Enclosure

cc: City Clerk